

Barrow Magnetic Observatory

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The Barrow Magnetic Observatory (BMO) is the northernmost of the U.S. Geological Survey (USGS) 14 continuously recording, digital magnetic observatories. As such, it serves as a singularly important site in a global network of observing stations whose combined data help describe the Earth's magnetic field and track its secular change. Ground stations such as the Barrow Observatory serve as controls for field modeling, as reference stations for airborne and satellite surveys, and as absolute calibration locations for field surveys. Data from Barrow are forwarded electronically to the USGS Central Region Geologic Hazards Team, Geomagnetism Group in Golden, Colorado. From there the data are distributed worldwide and sent to the international INTERMAGNET organization. Final processed data from Barrow and the other 13 USGS observatories are sent to the NOAA World Data Center A for archiving.

The primary instrumentation operated are: triaxial fluxgate magnetometer, proton precision magnetometer, Observatory Magnetometer Data Collection Platform (DCP), and

instruments for absolute control observations. Data output consists of 1-min values of three vector components of the Earth's magnetic field, as well as the total field.

In August 1993, the USGS and NOAA negotiated a Memorandum of Agreement (MOA) to have CMDL personnel at Barrow service the USGS BMO equipment, make instrument observations, and provide some logistic support. The weekly absolute measurements and equipment service made by NOAA personnel are essential for maintaining high standards for the observatory operation and data quality. At the time of writing this report, USGS and NOAA are renegotiating and updating the MOA.

The Barrow Magnetic Observatory receives its authorization to operate from the USGS Central Region Geologic Hazards Team.

Principal investigators for the Barrow Observatory are located at the USGS College Observatory at the UAF in Fairbanks, Alaska, and the USGS Central Region Geologic Hazards Team, Geomagnetism Group.